

*THE EFFECTS OF A PUBLIC ADDRESS SYSTEM ON
THE OFF-TASK BEHAVIOR OF ELEMENTARY
PHYSICAL EDUCATION STUDENTS*

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The purpose of this study was to determine the effects of teacher feedback delivered via a public address system on the off-task behavior of elementary-school physical education students. A multiple baseline design across three classes was used in this investigation. Results indicated a consistent decline in off-task behavior when the public address feedback system was used.

DESCRIPTORS: physical education, public address system, feedback, off-task behavior

Research indicates that student off-task behavior is lower when a teacher is in close proximity (van der Mars & Cusimano, 1988). However, Ryan and Yerg (2001) found that when physical education teachers were not able to use teacher proximity, the use of distal feedback or “crossgroup feedback” was shown to reduce student off-task behavior. Distal or crossgroup feedback is defined as teacher feedback given to students furthest away from the teacher.

Berg (1993) suggested that a cost-effective, appropriate, and acceptable strategy for providing crossgroup feedback is through the use of sound field amplification systems. Despite the evidence that supports the effectiveness of the use of a public address (PA)

system in a classroom environment, to date no research has focused on physical education behaviors associated with the use of a PA system. Therefore, the goal of this study was to examine the effect of a PA system on reducing off-task behavior in a physical education setting.

METHOD

Participants and Settings

The participants were one teacher and the students in three coeducational physical education classes at an elementary school. The racial composition of the school was approximately 98% African American and 2% Caucasian, Asian, and Hispanic. Most families were of lower socioeconomic status. Each class contained between 15 to 25 kindergarten, first-, or second-grade boys and

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girls. The classes met twice per week for 30 min. One female physical education teacher volunteered to participate while teaching her regular scheduled classes.

Target Behavior and Observation Procedure

For the purpose of this study, student off-task behavior was defined when a student was either not engaged in an activity he or she should be engaged in; these included behavior disruptions, misbehavior, and general off-task behavior (i.e., misusing equipment, fooling around, fighting). Two graduate students recorded off-task behavior during 10-min sessions. Data were collected from live recording sessions of teacher and student participants. Prior to viewing a session, the observer reviewed a preestablished detailed guideline with examples and coding procedure for off-task behavior. To measure off-task behavior, the sessions were partitioned into 40 15-s intervals. During each interval, the observer scanned the entire class from left to right for 15 s and counted the total number of students who were off task. A student deemed off task was counted only once during the 15-s scan but could be scored as being off task multiple times in a 10-min session. At the end of the class, the number of off-task students was summed to represent the session total.

Three baseline and three intervention-phase class periods for each grade (22%) were randomly selected to determine inter-observer agreement. Agreement was calculated by dividing the smaller frequency (i.e., number of students off task) in each interval by the larger frequency and multiplying by 100%. The variable of off-task behavior was compared by observers using the interval-by-interval method and produced mean percentages for the kindergarten class of 92% (range, 87% to 96%), 88% (range, 84% to 94%) for the first-grade class, and 89% (range, 86% to 92%) for the second-grade class.

Experimental Design and Procedure

Effects of the PA system were evaluated using a multiple baseline design across classes. During baseline and intervention, the teacher was instructed to conduct class activities using her typical methods, which included class warm-up and exercises, introduction to activities, skill development with feedback, and closure. During intervention phases, the teacher wore a wireless microphone and amplified her feedback using a PA system (AmpliVox, Model SW 805A). The teacher was instructed prior to each daily observation to use the same instructional methods but with the addition of PA feedback. Typical teacher feedback included individual, group, skill specific, corrective, positive, and behavior. The teacher was instructed to switch off the microphone if she needed to give personal feedback, instruction, or discipline that might cause embarrassment for the student if it were broadcasted for all students to hear. The teacher switched off the microphone an average of 2.5 times per class. A 10-min segment of scheduled practice time was recorded. During this time, students were spread out over the activity area while they participated in a variety of activities such as dribbling and shooting basketballs, jumping ropes, or throwing and catching in skill-building or game-like situations. All students had their own equipment during skill-development activities. To assess the social validity of the intervention, the school principal and one classroom teacher were invited to observe the physical education teacher using the PA system during one of her classes. The physical education teacher was also asked to complete a questionnaire with four 6-point Likert-scale items and three open-ended questions regarding the ease of implementation and effectiveness of the intervention.

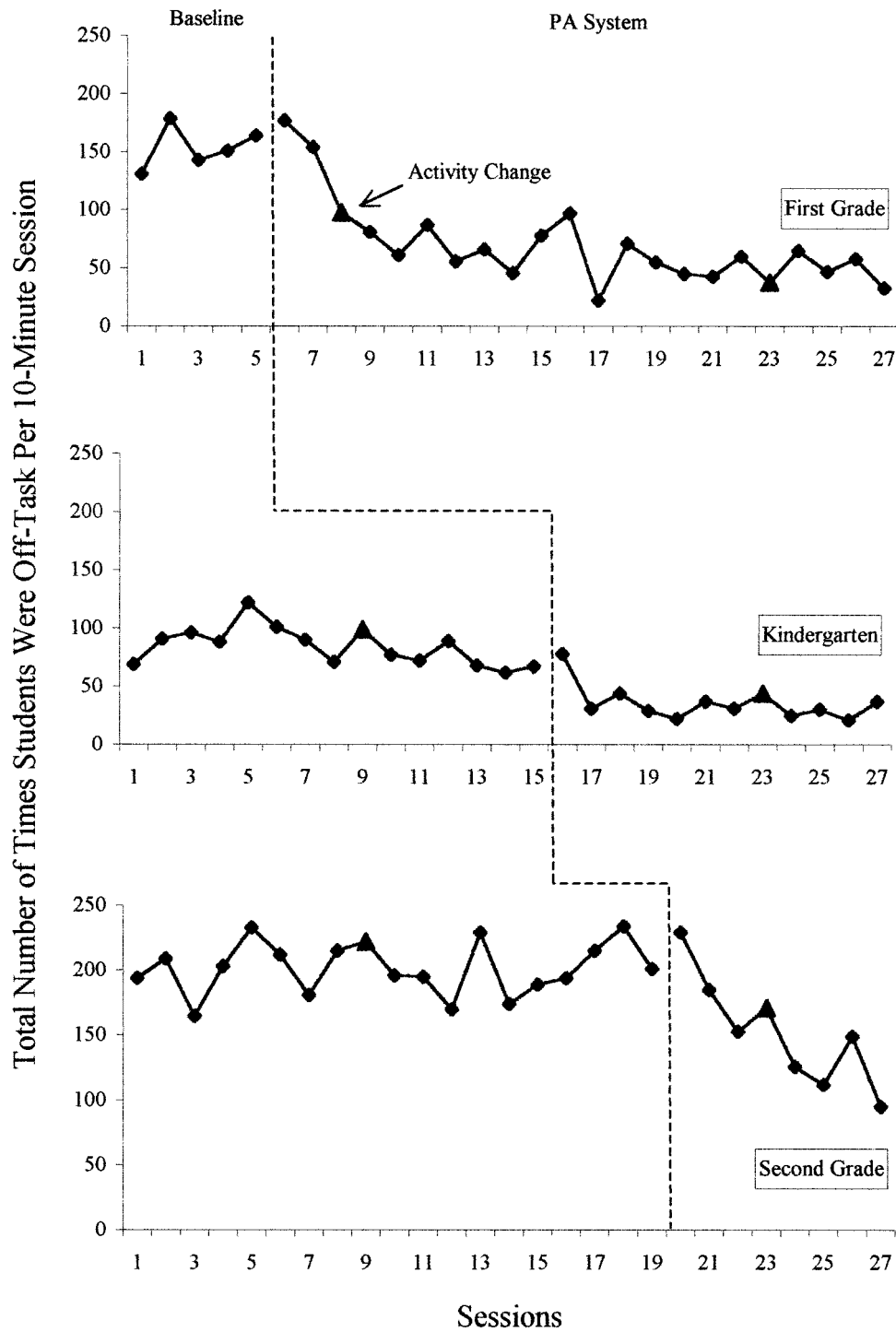


Figure 1. Number of times students were off task per 10-min session.

RESULTS AND DISCUSSION

The total numbers of times students were scored as being off task, summed across students and sampling intervals for each 10-min observation period, are shown in Figure 1. The number of times students were off task under the PA feedback intervention showed a decreasing trend. The mean number of times students in the first-grade class were off task during baseline was 153.6 and decreased to 69.9 with PA feedback. The mean number of times students in the kindergarten class were off task was 84.1 in baseline and decreased to 35.7 with the use of PA feedback. The second-grade class had a baseline mean of 201.6, whereas the intervention with PA feedback decreased this number to 152.5.

The principal and classroom teacher reported the use of the PA system to be very helpful for providing students with needed instructional feedback. The physical education teacher reported that PA feedback was very effective in reducing the number of times students were off task in her classes.

This research extends the use of behavioral technologies in a school setting outside the classroom and provides an effective tool for reducing student off-task behavior in a physical education setting. These findings also support those of Ryan and Yerg (2001), who suggested that when students receive distal feedback, on-task behavior rates were higher. However, possible effects of the PA feedback may be due to increased teacher feedback, type of feedback given, or that more children may have heard the teaching instructions. Public feedback in the form of public postings has resulted in improved

sports performance during practice (Brobst & Ward, 2002; Ward & Carnes, 2002), which in some cases has generalized to performance during actual games. Future research should examine the role of audience control when feedback to an individual is provided in a public context.

The present study is limited due to the absence of data on the type and frequency of teacher feedback across conditions, the inclusion of only one teacher, and lack of follow-up data. Future efforts to examine the effects of PA feedback in the area of student work involvement and skill acquisition may provide added insight into effective teaching components. Measuring levels of teacher feedback while using PA feedback and using multiple teachers over a longer duration may help to support these findings.

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